

CLAIMS

What is claimed is:

1. A wafer for fabricating integrated circuits using a stepper, said  
5 wafer comprising:  
a first region for receiving a four-sided stepper shot, said stepper shot  
having a scribe line along its perimeter; and  
four alignment targets disposed within said scribe line, said alignment  
targets for aligning said stepper shot and said first region;  
10 wherein one alignment target is located on each side of said stepper  
shot, and wherein an alignment target on a first side of said stepper shot and an  
alignment target on a second side of said stepper shot opposing said first side  
are located in mirror-image positions.
- 15 2. The wafer as recited in Claim 1 wherein opposing sides of said  
stepper shot are equal in length, and wherein an alignment target is located at  
each mid-point of a side of said stepper shot.
- 20 3. The wafer as recited in Claim 1 wherein an alignment target is  
located at each corner of said stepper shot.
4. The wafer as recited in Claim 1 wherein said alignment targets are  
formed according to a positive resist process.

5. The wafer as recited in Claim 1 wherein said alignment targets are formed according to a negative resist process.

5 6. The wafer as recited in Claim 1 further comprising a second region adjoining said first region, said second region for receiving a second stepper shot having a scribe line along its perimeter, wherein a segment of said scribe line of said second stepper shot overlays a segment of said scribe line of said first stepper shot such that an alignment target of said second stepper shot  
10 overlays an alignment target of said first stepper shot.

7. The wafer as recited in Claim 1 wherein each of said alignment targets comprise a plurality of rectangles.

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15 8. A reticle used to form alignment targets on a wafer, said reticle comprising:

a four-sided region comprising a first pattern for forming an integrated circuit on said wafer, said region having a scribe line along its perimeter; and

a second pattern disposed within said scribe line and comprising four  
20 alignment target patterns for forming four alignment targets on said wafer in a stepper shot;

wherein one alignment target pattern is located on each side of said region, and wherein an alignment target pattern on a first side of said region

and an alignment target pattern on a second side of said region opposing said first side are located in mirror image positions.

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10. The reticle as recited in Claim 9 wherein opposing sides of said region are equal in length, and wherein each of said alignment target patterns is located at a mid-point of a side of said region.

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11. The reticle as recited in Claim 9 wherein each of said four alignment target patterns is located at a corner of said region.

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12. The reticle as recited in Claim 9 wherein said alignment target patterns comprise a plurality of rectangular-shaped masks.

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13. The wafer as recited in Claim 9 wherein said alignment targets are  
15 formed according to a positive resist process.

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14. The wafer as recited in Claim 9 wherein said alignment targets are formed according to a negative resist process.

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20 16. In a stepper, a method for forming alignment targets on a wafer, said method comprising the steps of:

a) receiving said wafer;

b) performing a first stepper shot according to a pattern mask covering a four-sided region having a scribe line along its perimeter;

c) forming four alignment targets within said scribe line of said first stepper shot, wherein one alignment target is disposed on each side of said first stepper shot and wherein an alignment target on a first side of said first stepper shot and an alignment target on a second side opposing said first side are located in mirror-image positions;

d) performing a second stepper shot adjoining said first stepper shot and using said pattern mask of said step b), wherein a segment of a scribe line of said second stepper shot overlays a segment of said scribe line of said first stepper shot; and

e) forming four alignment targets within said scribe line of said second stepper shot such that an alignment target of said second stepper shot overlays an alignment target of said first stepper shot.

16. The method as recited in Claim 15 wherein opposing sides of said first and second stepper shots are equal in length, and wherein an alignment target is located at each mid-point of a side of said stepper shots.

17. The method as recited in Claim 15 wherein an alignment target is located at each corner of said first and second stepper shots.

17 ✓ 18. The method as recited in Claim 15 wherein said alignment targets are formed according to a positive resist process.

18 ✓ 19. The method as recited in Claim 15 wherein said alignment targets are formed according to a negative resist process.

19 ✓ 20. The method as recited in Claim 15 wherein each of said alignment targets comprises a plurality of rectangles.

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